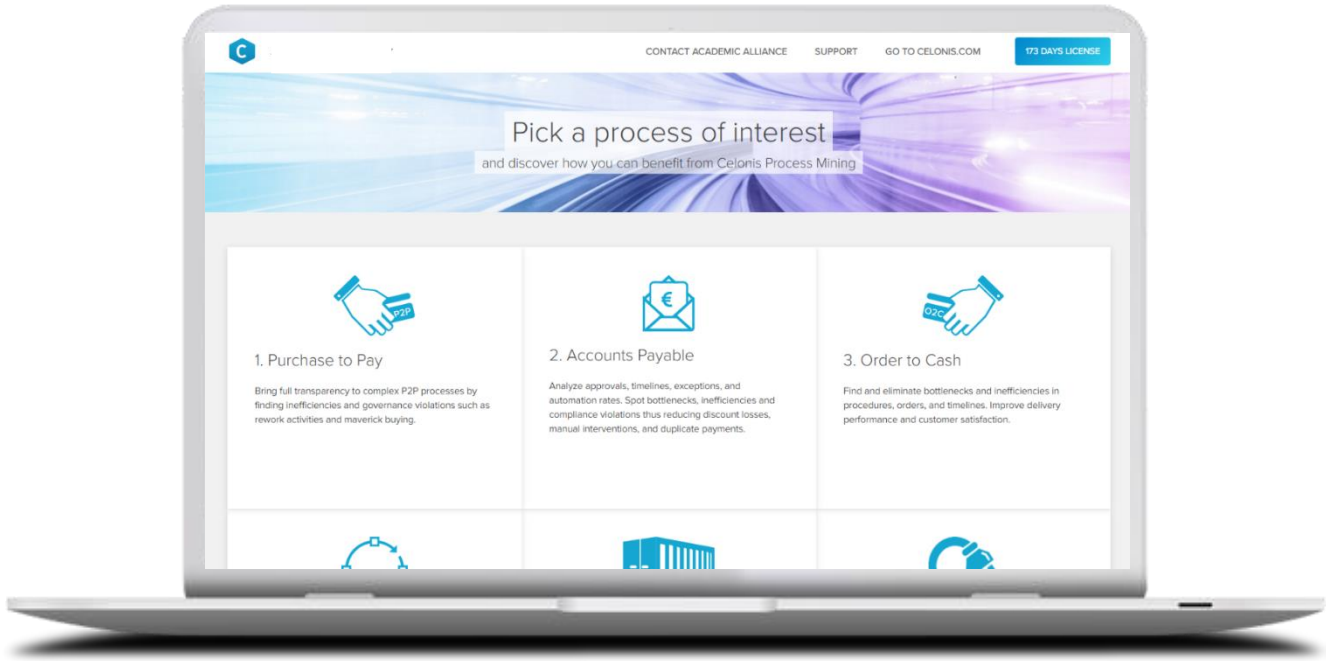
ACADEMIC CLOUD – START PROCESS MINING TODAY

celonis
Academic Alliance



academic cloud

Free software license for
students, teachers and researchers

https://academiccloud.celonis.com

Free access
Explore the full power of process mining.

Flexibility
Nine pre-loaded data sets and analyses. Import of own log-files.

Efficiency
No installation required. Top speed through latest cloud technology.

celonis
Academic Alliance

Celonis Process Mining

Turning Data into Value

GUEST LECTURE | September 06, 2018

JANINA NAKLADAL

UNSW SYDNEY

AGENDA

celonis
Academic Alliance

	Processes as a key success factor
	About Celonis – A start-up success story
	Theoretical foundations of process mining technology
	Live demo and hands-on exercises
	Celonis PI – Process Mining becomes smart
	Creating business value with process mining
	Use cases and requirements for successful application of process mining
	A look into the future

celonis
Academic Alliance

What are the largest companies by market capitalization?

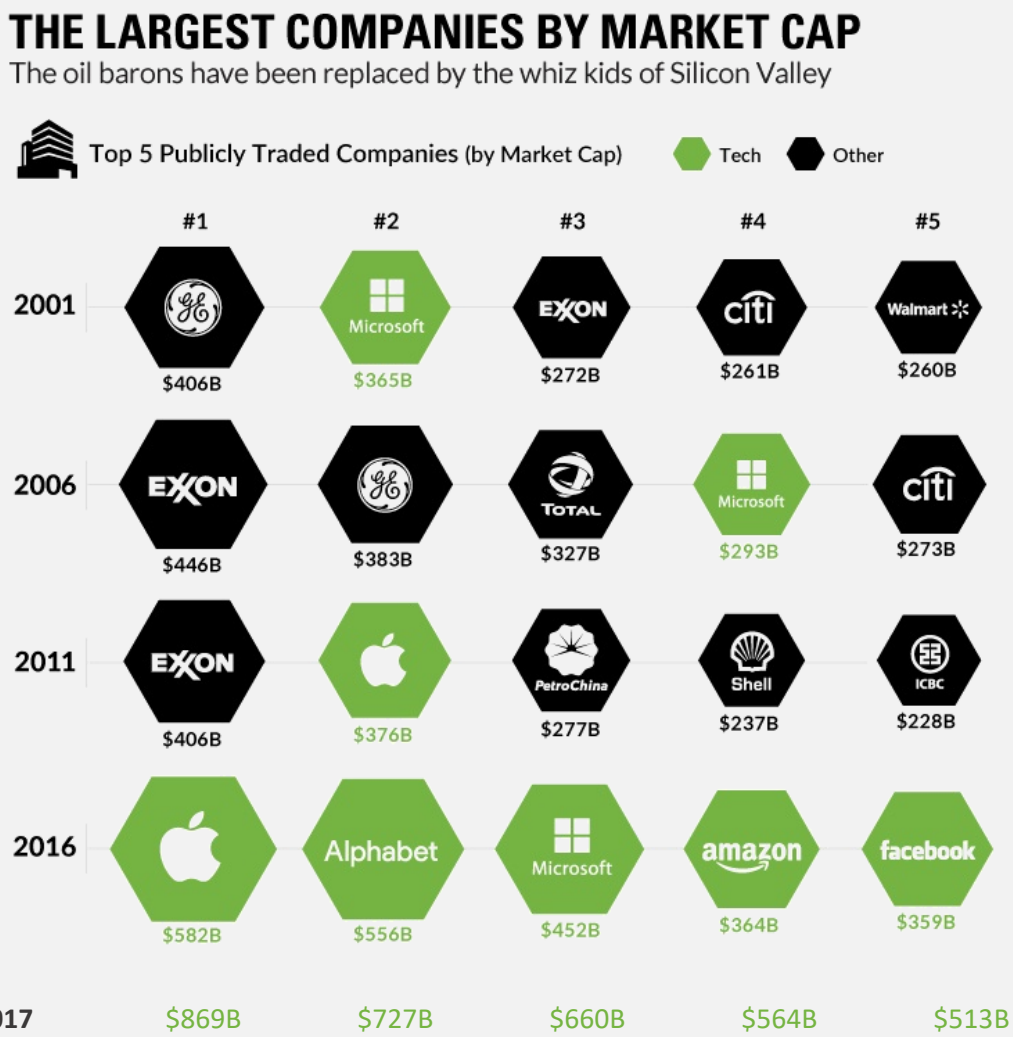
DATA IS THE NEW OIL

celonis
Academic Alliance

Information is the oil of the 21st century,

and analytics is the combustion engine.

Peter Sondergaard, SVP Gartner



http://www.visualcapitalist.com/chart-largest-companies-market-cap-15-years/

WHAT IS DRIVING COMPANIES TODAY?

ECONOMIC DRIVERS

CUSTOMER EXPECTATIONS

INSTANT GRATIFICATION

QUALITY EXPERIENCE

TRANSPARENCY AND AUTHENTICITY

PRODUCTIVITY

LABOR RATES ARE EQUALIZING

POPULATION GROWTH IS SLOWING

WHAT IS DRIVING COMPANIES TODAY?

celonis
Academic Alliance

Customer centricity

Shorter product cycles

Robotization

Winner-takes-it-all markets

Global, complex and digital supply chains

Mass customization of products

Same day delivery

> 400 m different products

Highly auto-mated fulfillment

AUTOMIZED MANUFACTURING AT ADIDAS

celonis
Academic Alliance

ROBOTS

This is the first Adidas shoe made almost entirely by robots

Using robots to make shoes means moving factories closer to the people who buy them.

BY APRIL GLASER | @APRILASER | SEP 27, 2016, 10:13AM EDT

TWEET SHARE LINKEDIN

Adidas

The need for speed: Adidas and Siemens to build future digital factories

by John Kennedy

4 MAY 2017 414 SHARES

Adidas Stan Smith classic shoes. Image: 2p2play/Shutterstock

LATEST NEWS

X marks the spot as new name for iPhone leaks ahead of launch
2 HOURS AGO

These Irish sisters are on a roll with statement style for wheelchairs
3 HOURS AGO

Weekend takeaway: Inside the business of change

Faking out fake news: How to

Customized designs

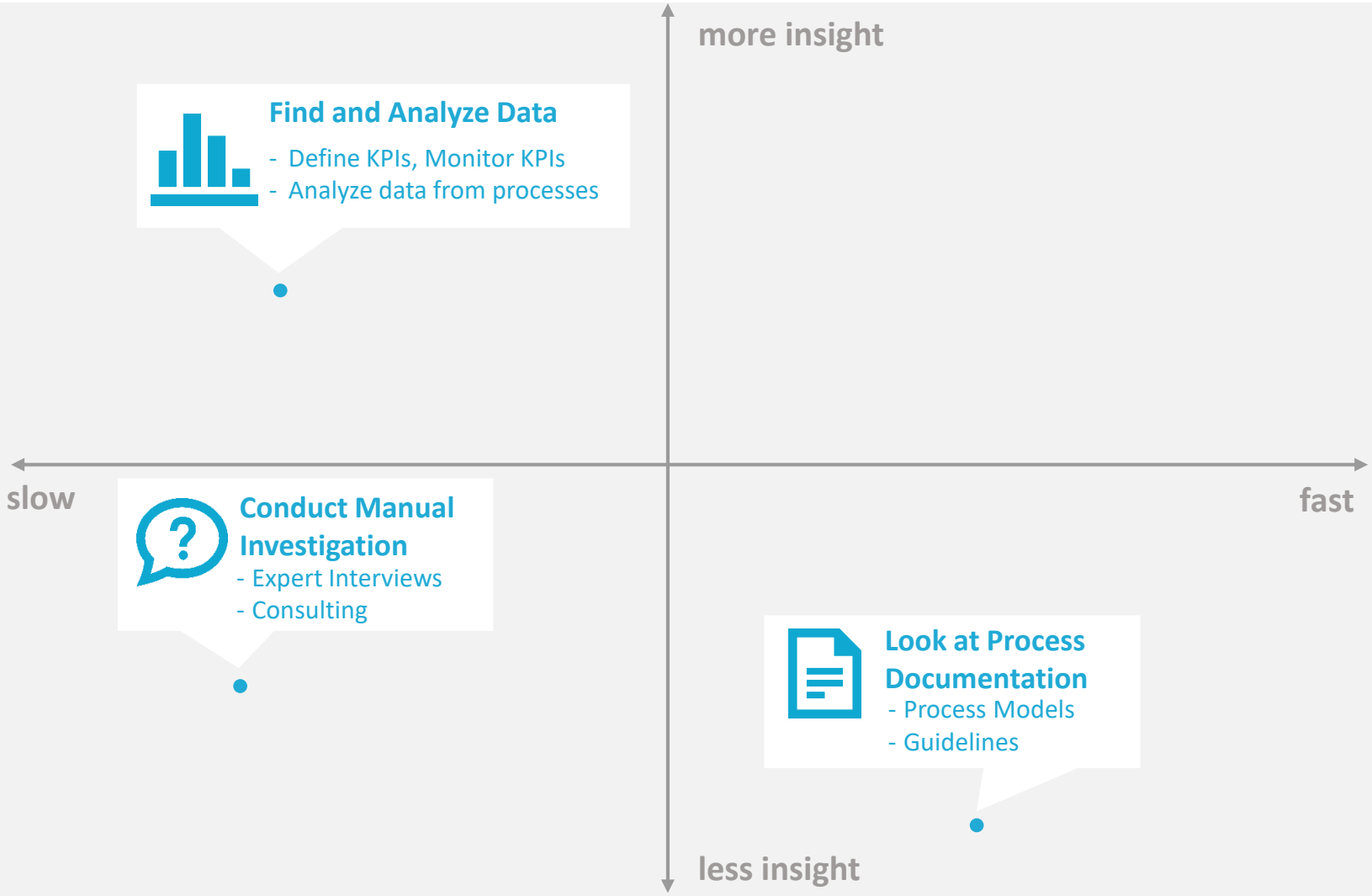
Robotic production

Faster time-to-market

THE TRANSFORMATION MACHINE

celonis
Academic Alliance

HOW DO YOU GET INSIGHTS INTO BUSINESS PROCESSES?



The methods currently available are not efficient or powerful enough.

X

HOW DO YOU GET INSIGHTS INTO BUSINESS PROCESSES?

celonis
Academic Alliance

more insight

Find and Analyze Data
- Define KPIs, Monitor KPIs
- Analyze data from processes

Process Mining
Full Transparency

slow

fast

Conduct Manual Investigation
- Expert Interviews
- Consulting

Look at Process Documentation
- Process Models
- Guidelines

less insight

Time for a change:
Switch on the lights!

celonis
Academic Alliance

Who we are

HOW EVERYTHING STARTED IN 2011…

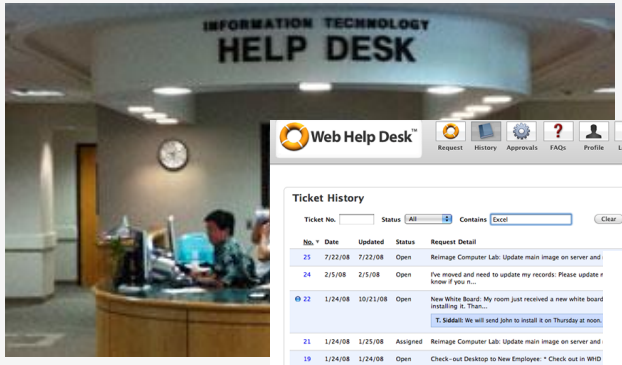
celonis Academic Alliance

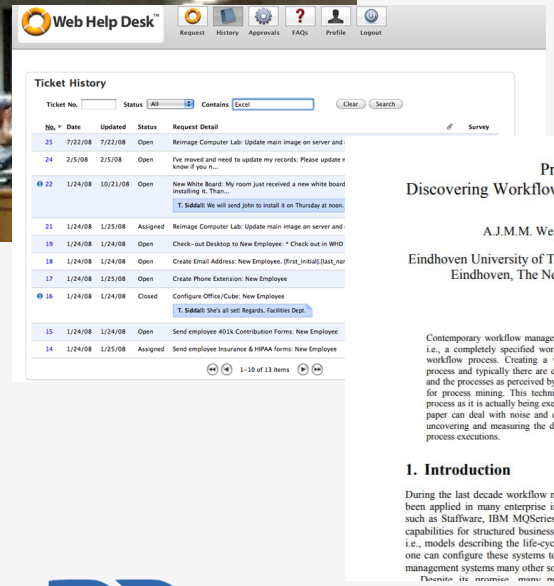
THE TEAM

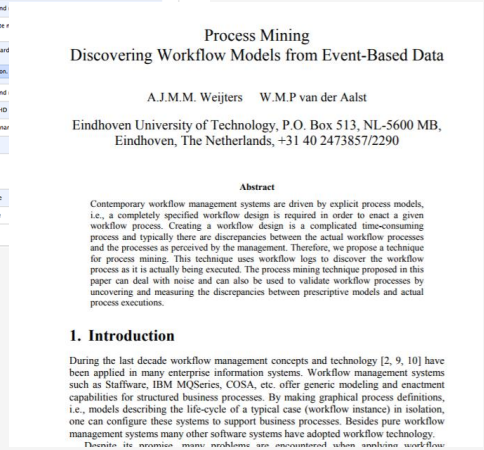
academy consult

Technische Universität München

THE PROJECT







Process Mining
Discovering Workflow Models from Event-Based Data

A.J.M.M. Weijters W.M.P van der Aalst

Eindhoven University of Technology, P.O. Box 513, NL-5600 MB, Eindhoven, The Netherlands, +31 40 2473857/2290

Abstract

Contemporary workflow management systems are driven by explicit process models, i.e., a completely specified workflow design is required in order to enact a given workflow process. Creating a workflow design is a complicated time-consuming process and typically there are discrepancies between the actual workflow processes and the processes as perceived by the management. Therefore, we propose a technique for process mining. This technique uses workflow logs to discover the workflow process as it is actually being executed. The process mining technique proposed in this paper can deal with noise and can also be used to validate workflow processes by uncovering and measuring the discrepancies between prescriptive models and actual process executions.

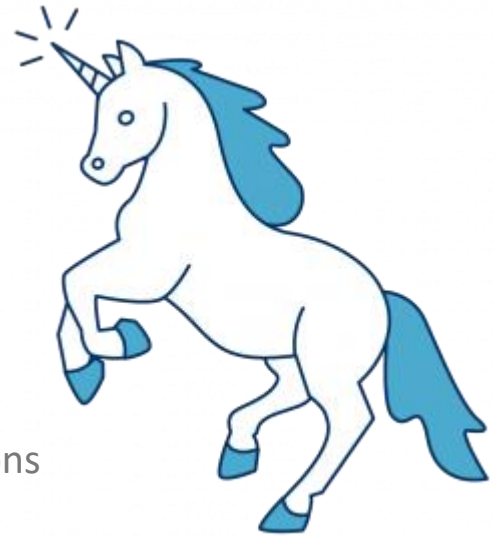
1. Introduction

During the last decade workflow management concepts and technology [2, 9, 10] have been applied in many enterprise information systems. Workflow management systems such as Staffware, IBM MQSeries, COSA, etc. offer generic modeling and enactment capabilities for structured business processes. By making graphical process definitions, i.e., models describing the life-cycle of a typical case (workflow instance) in isolation, one can configure these systems to support business processes. Besides pure workflow management systems many other software systems have adopted workflow technology.

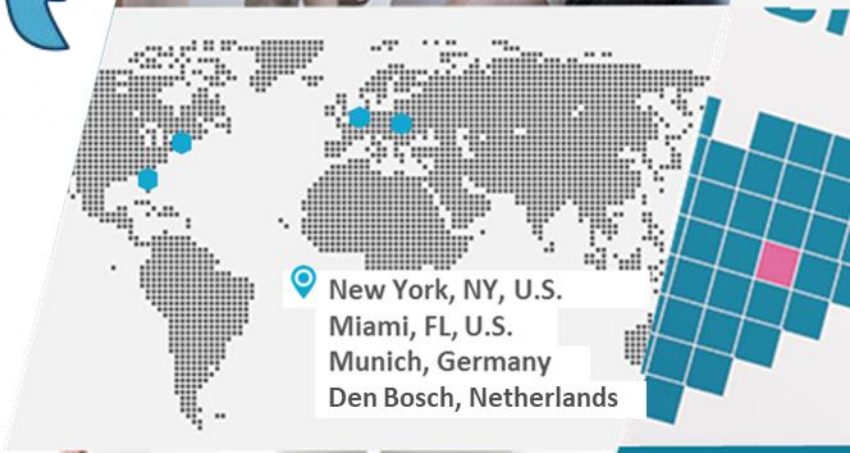
BR

CELONIS TODAY

CELONIS IS AN INNOVATIVE, AWARD-WINNING SOFTWARE COMPANY AND THE MARKET LEADER FOR PROCESS MINING.



- **We make our customers more successful**
  By improving every process throughout their organizations
- **We work with leading customers in the world**
  More than 450 enterprises are already Celonis customers
- **Among fastest growing software companies in the world**
  >200% per year
- **Backed by world class investors Accel & 83 North/ Greylock**
  (Facebook, Dropbox, Spotify, Slack, AirBnB, LinkedIn)
- **One of ~50 Unicorns in Europe**
  $50 million Series B investment (2018) on a **$1 billion valuation**



Deloitte. Technology Fast50 · Ernst & Young Entrepreneur of the Year · SAP HANA Innovation Award · SAP Demo Jam · The Stevies · Innovationspreis-IT 2016 mittelstand · SAP Pinnacle Awards 2016 Finalist · German Silicon Valley Accelerator · TUM Presidential Entrepreneurship Award 2015

OUR SUCCESS

celonis
Academic Alliance

USER & USAGE

100,000+
Users

350+
Enterprise customers

15+
Industries

25
Countries

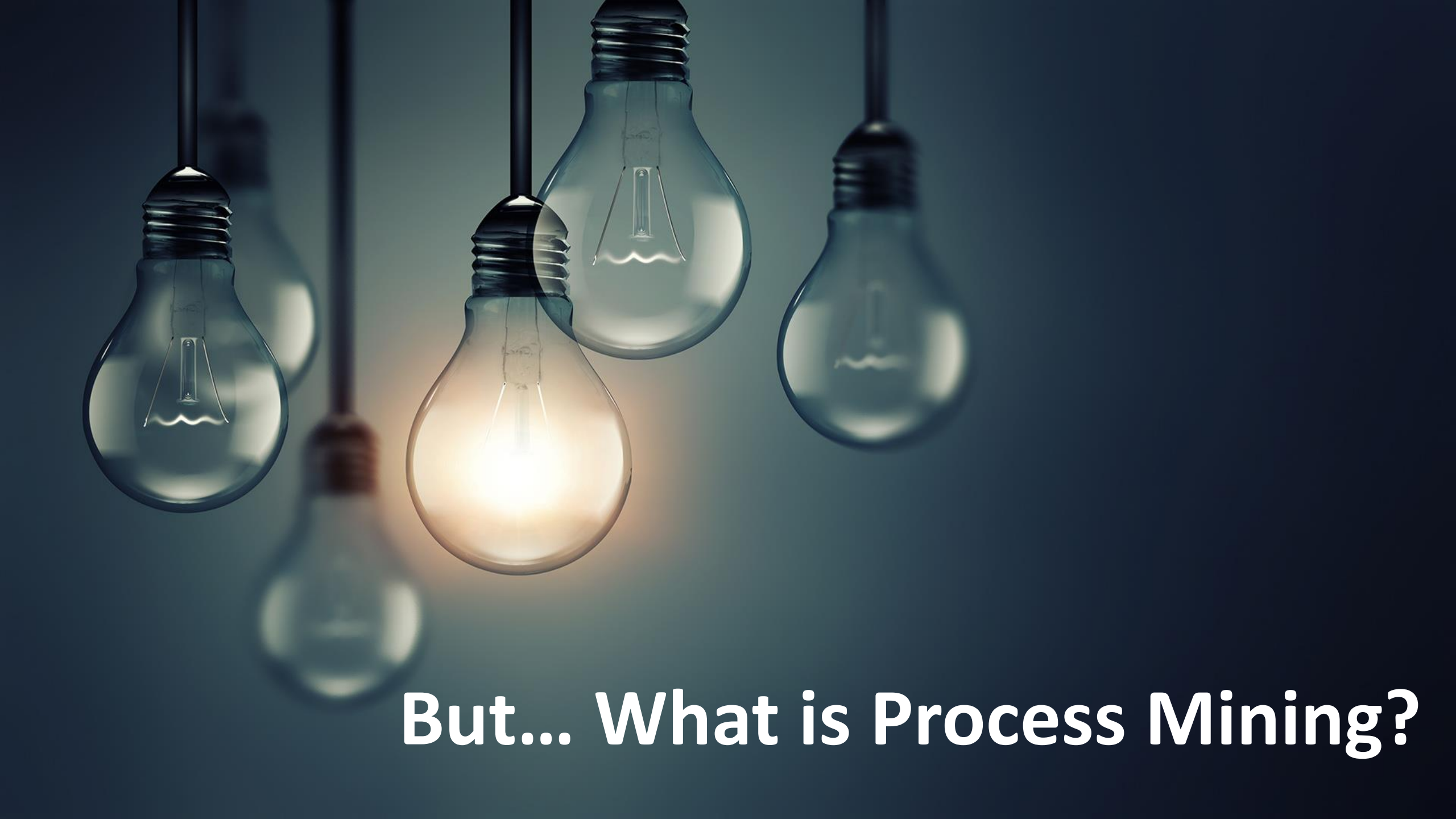
90+
Partners

70+
Standard Connectors

68
Different connected processes

70+ ERPs
Biggest customer landscape

30+ TB
Largest customer Installation



But… What is Process Mining?


NOTHING ON EARTH
COULD COME BETWEEN THEM.
LEONARDO DiCAPRIO KATE WINSLET
TITANIC

(F.) **OFFICIAL LOG BOOK.** **No. 2.**

OF

HOME TRADE SHIP.

Name of Ship	No. and Place of Registry	Port of Registry	Tonnage	Name of Master	No. of Seamen
Felicia		Aberdeen	1842	George Mathers	

Date of Commencement of the Voyage Wednesday October 19th 1853

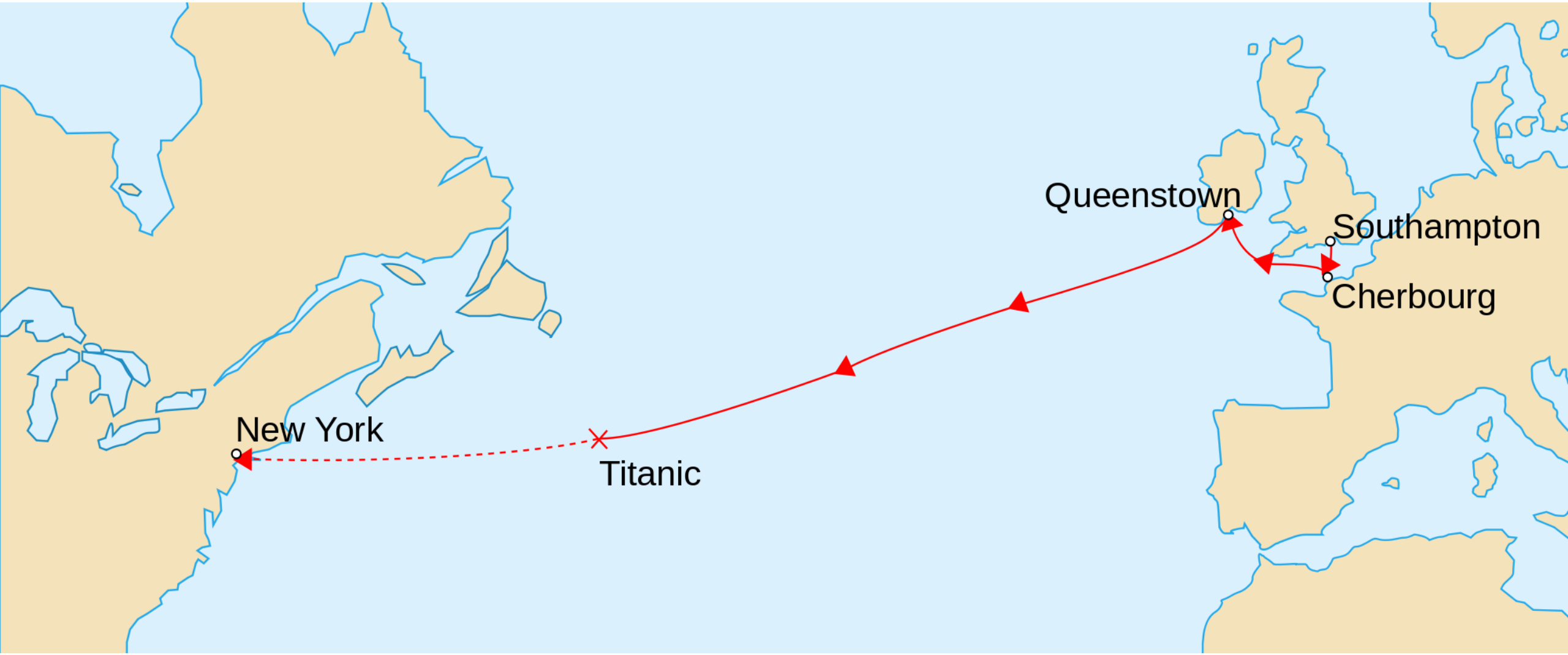
Name of the Voyge or Employment from Cardiff to Callao from thence to the Chincha Islands and to Pacasmayo and from thence to Callao

Delivered to the Shipping Master at the Port of Cardiff day of September 1854

Day of to

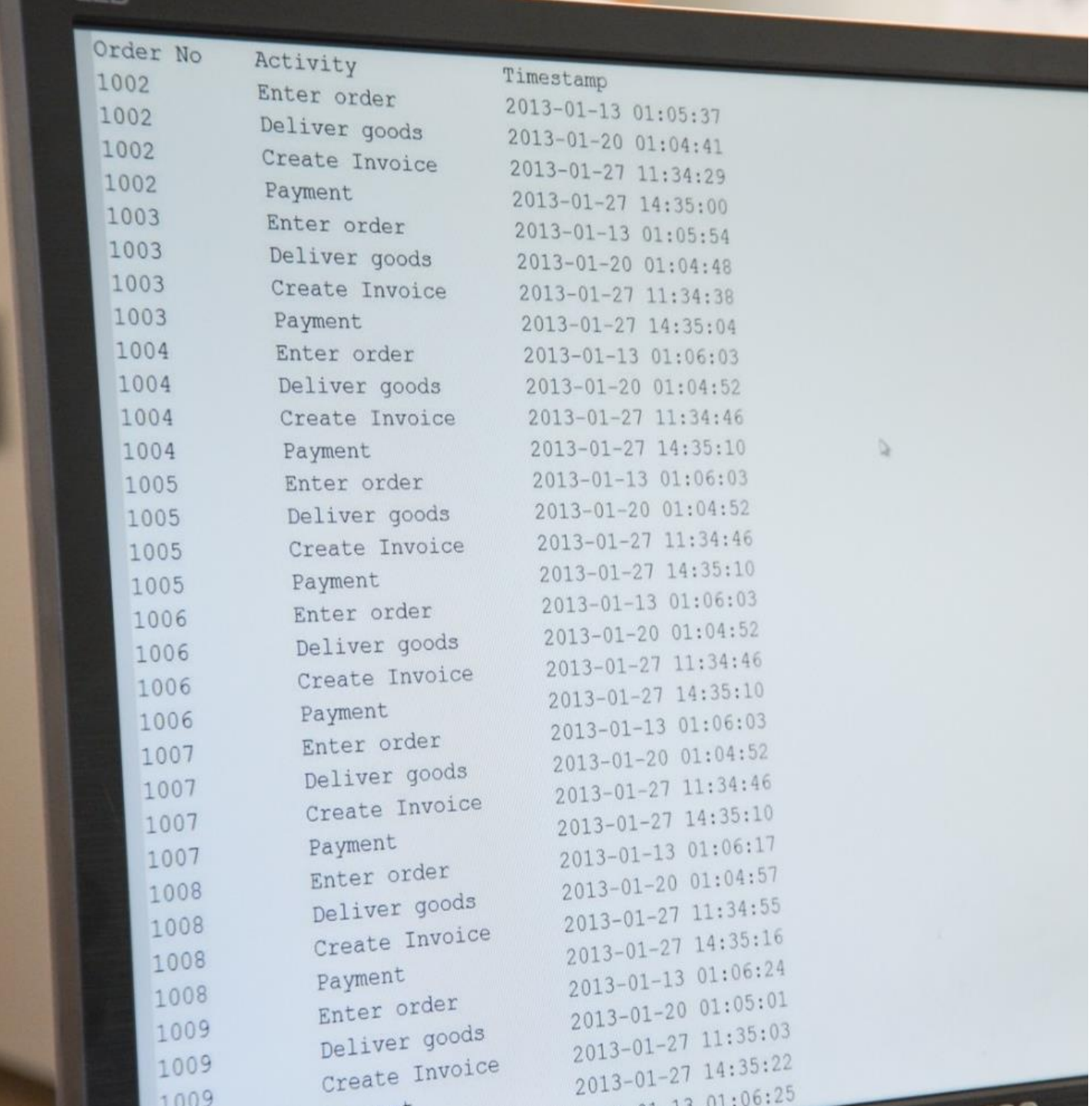
Signed

DATE.		Latitude.	Longitude	CURRENT.		WIND.		CLOUDS.			Bar.
Month & Day.	Hour.	N.	W.	Set.	Velocity in knots per h.	Direction.	Force.	Kinds.	Portion.	Motion from	
		° ′ ″	° ′ ″								
Nov. 30	8 A. M.	31 44	51 51	N. 4° W.	0.9	S. S. W.	Fresh.	Cirro Stratus.	10	S. W.	30.06
	4 P. M.	31 47	51 4			S. S. W.	Fresh.	Cir. Cum. Stratus and Nimbus.	10	S. W.	30.09
Dec. 1	Midn't.	31 52	50 51			N. N. W.	Light breeze.	Nimbus and Cum. Stratus.	10	S. W.	30.10
	8 A. M.	31 59	49 48			S. W.	Moderate.	Nimbus and Cirro Cum. Stratus.	10	S'd. & W'd.	30.12
	4 P. M.	32 00	49.13			S. S. E.	Light breezes.	Nimbus.	10	Southward.	30.12
" 2	Midn't.	32 00	48 50			S. S. E.	Light breezes.	Nimbus.	10	Southward.	30.12
	8 A. M.	32 24	48 26	N. 53° W.	0.5	S. E.	Moderate.	Cum. Stratus.	8	S'd. & E'd.	30.22
	4 P. M.	32 25 20	47 50	Westward.	0.5	South.	Moderate.	Cir. Cum. Strat.	5	Southward.	30.18


Queenstown
Southampton
Cherbourg
New York
Titanic

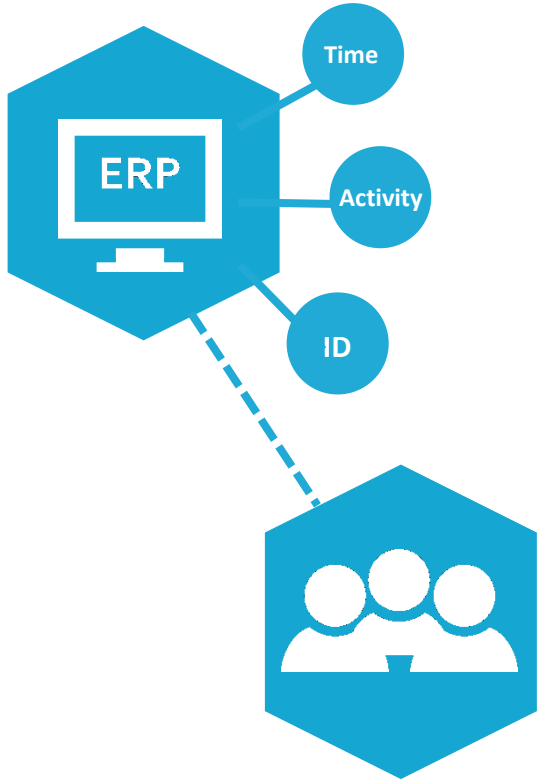
celonis
Academic Alliance

IT-based work
Every workflow is supported by IT systems like SAP.



Order No	Activity	Timestamp
1002	Enter order	2013-01-13 01:05:37
1002	Deliver goods	2013-01-20 01:04:41
1002	Create Invoice	2013-01-27 11:34:29
1002	Payment	2013-01-27 14:35:00
1003	Enter order	2013-01-13 01:05:54
1003	Deliver goods	2013-01-20 01:04:48
1003	Create Invoice	2013-01-27 11:34:38
1003	Payment	2013-01-27 14:35:04
1004	Enter order	2013-01-13 01:06:03
1004	Deliver goods	2013-01-20 01:04:52
1004	Create Invoice	2013-01-27 11:34:46
1004	Payment	2013-01-27 14:35:10
1005	Enter order	2013-01-13 01:06:03
1005	Deliver goods	2013-01-20 01:04:52
1005	Create Invoice	2013-01-27 11:34:46
1005	Payment	2013-01-27 14:35:10
1006	Enter order	2013-01-13 01:06:03
1006	Deliver goods	2013-01-20 01:04:52
1006	Create Invoice	2013-01-27 11:34:46
1006	Payment	2013-01-27 14:35:10
1007	Enter order	2013-01-13 01:06:03
1007	Deliver goods	2013-01-20 01:04:52
1007	Create Invoice	2013-01-27 11:34:46
1007	Payment	2013-01-27 14:35:10
1008	Enter order	2013-01-13 01:06:17
1008	Deliver goods	2013-01-20 01:04:57
1008	Create Invoice	2013-01-27 11:34:55
1008	Payment	2013-01-27 14:35:16
1009	Enter order	2013-01-13 01:06:24
1009	Deliver goods	2013-01-20 01:05:01
1009	Create Invoice	2013-01-27 11:35:03
1009		2013-01-27 14:35:22
		01:06:25

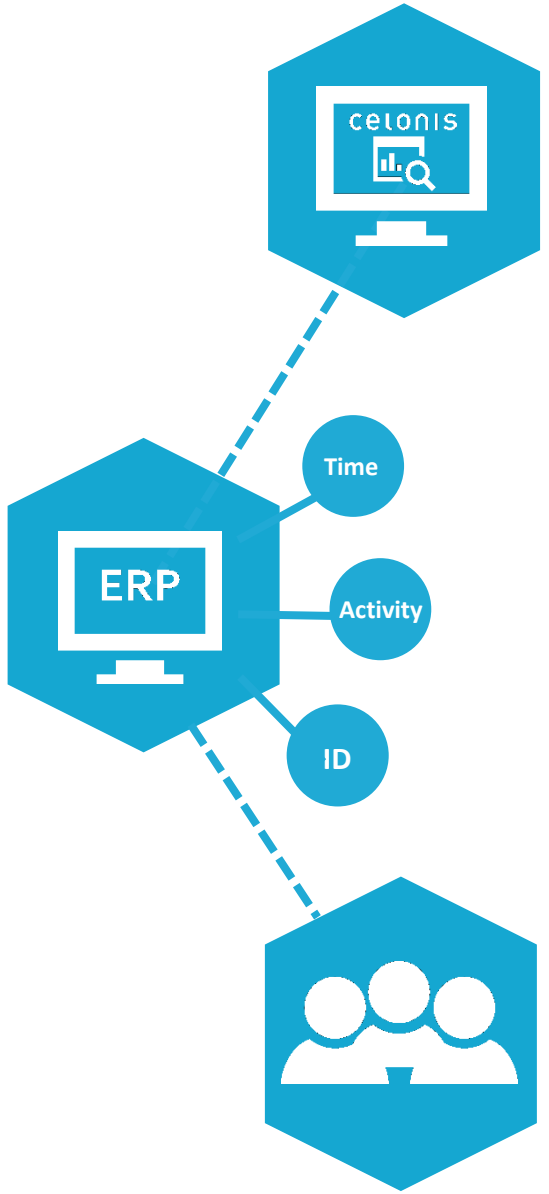
celonis
Academic Alliance



Digital Footprints
Celonis Process Mining finds & reconstructs digital workflow traces.

IT-based work
Every workflow is supported by IT systems like SAP.

celonis
Academic Alliance



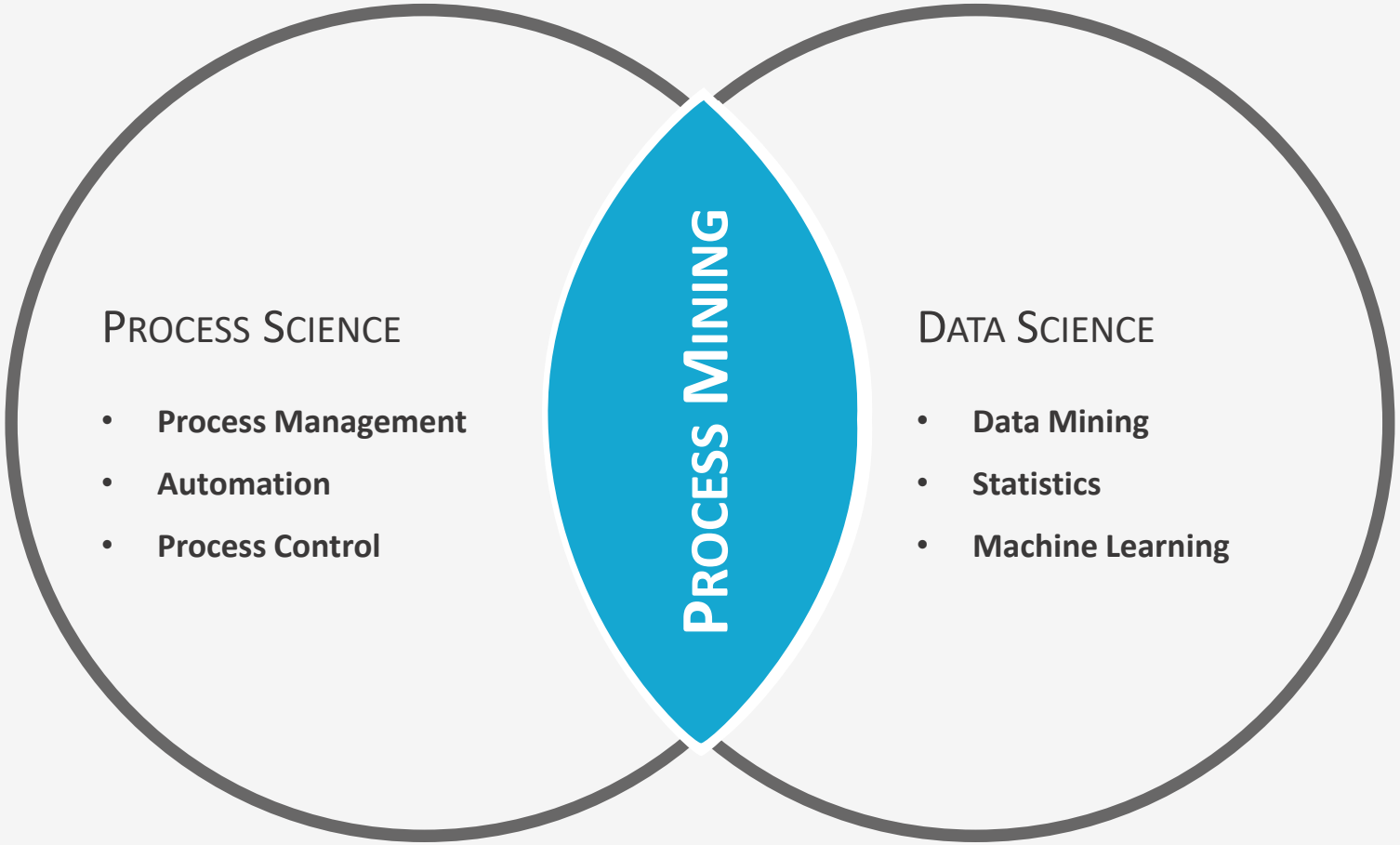
Full Transparency
Actual process flows are visualized in real time.

Digital Footprints
Celonis Process Mining finds & reconstructs digital workflow traces.

IT-based work
Every workflow is supported by IT systems like SAP.

PROCESS MINING CONTEXT

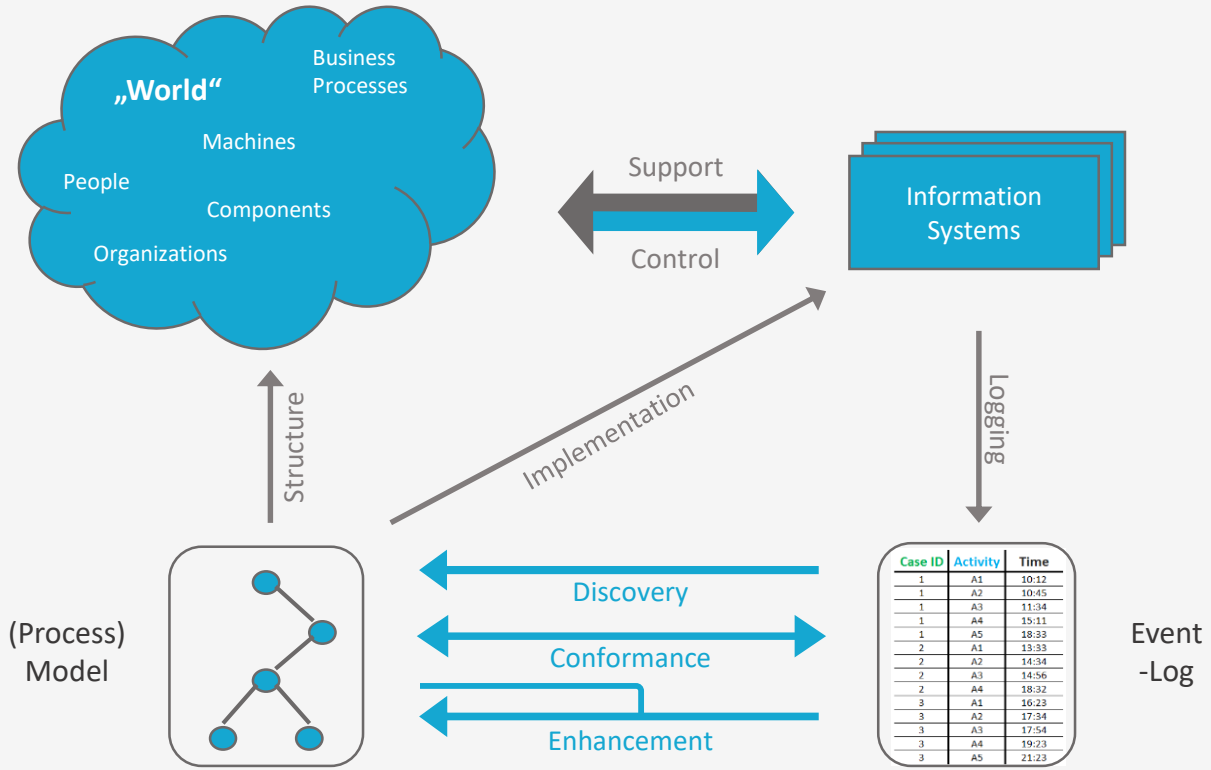
celonis
Academic Alliance



Source: Based on van der Aalst (2016)

PROCESS MINING AT A GLANCE

celonis
Academic Alliance



Source: Based on van der Aalst (2016)

PROCESS MODEL

celonis Academic Alliance

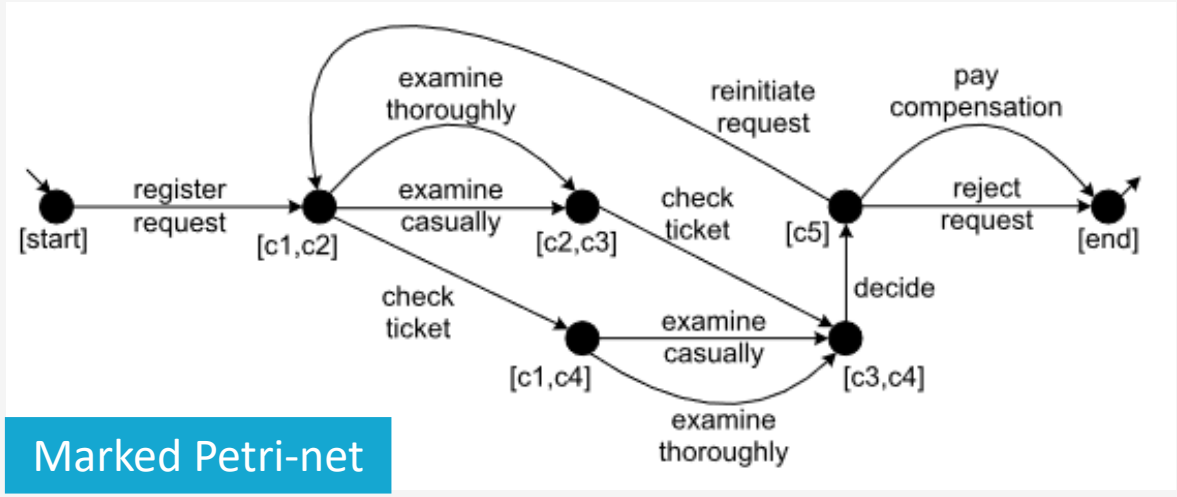
Operations Management:

Models are

- used to redesign, plan and controll process flows
- tailored towards a particular analysis technique
- only used for answering a specific question

Business Process Management:

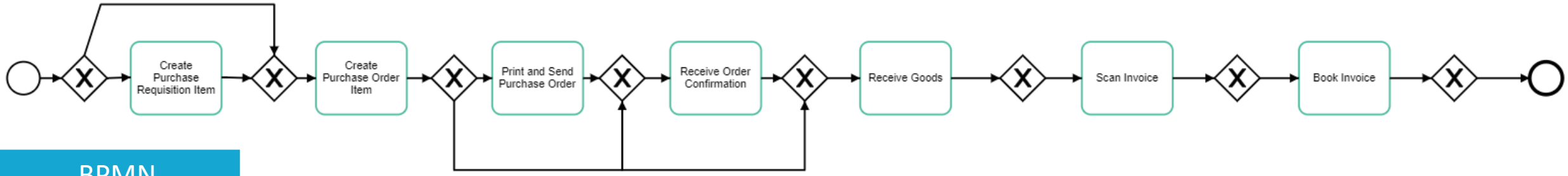
Process models serve multiple purposes



Marked Petri-net

Goal:

Decide which activities need to be executed and in what order



BPMN

Source: Based on van der Aalst (2016)

EVENT LOGGING

celonis
Academic Alliance

“Data Generators/Sources“

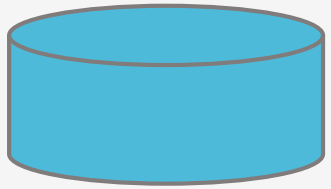
Information System Activities

Sensors & IoT Devices

System Interaction

Event Logging

Event Log



THE DATA MODEL

celonis
Academic Alliance

CaseID	Activity	Timestamp
10001	Create purchase order	01-01-2009, 8:35 am
10001	Print and send purchase order	03-01-2009, 12:13 am
10001	Goods receipt	07-01-2009, 07:01 am
10001	Scan invoice	09-01-2009, 2:00 pm
10001	Book invoice	10-01-2009, 10:30 am
10002	Create purchase requisition	02-02-2009, 1:17 pm
10002	Create purchase order	04-02-2009, 9:15 am
10002	Print and send purchase order	07-02-2009, 4:41 pm
10002	Goods receipt	27-02-2009, 6:53 am
10002	Scan invoice	28-02-2009, 1:00 pm
10002	Book invoice	13-03-2009, 11:59 am
10003	Scan invoice	13-04-2009, 10:00 am
10003	Create purchase order	17-04-2009, 3:47 pm
10003	Print and send purchase order	17-04-2009, 5:30 pm
10003	Goods receipt	27-04-2009, 4:23 pm
10003	Book invoice	30-04-2009, 8:50 am

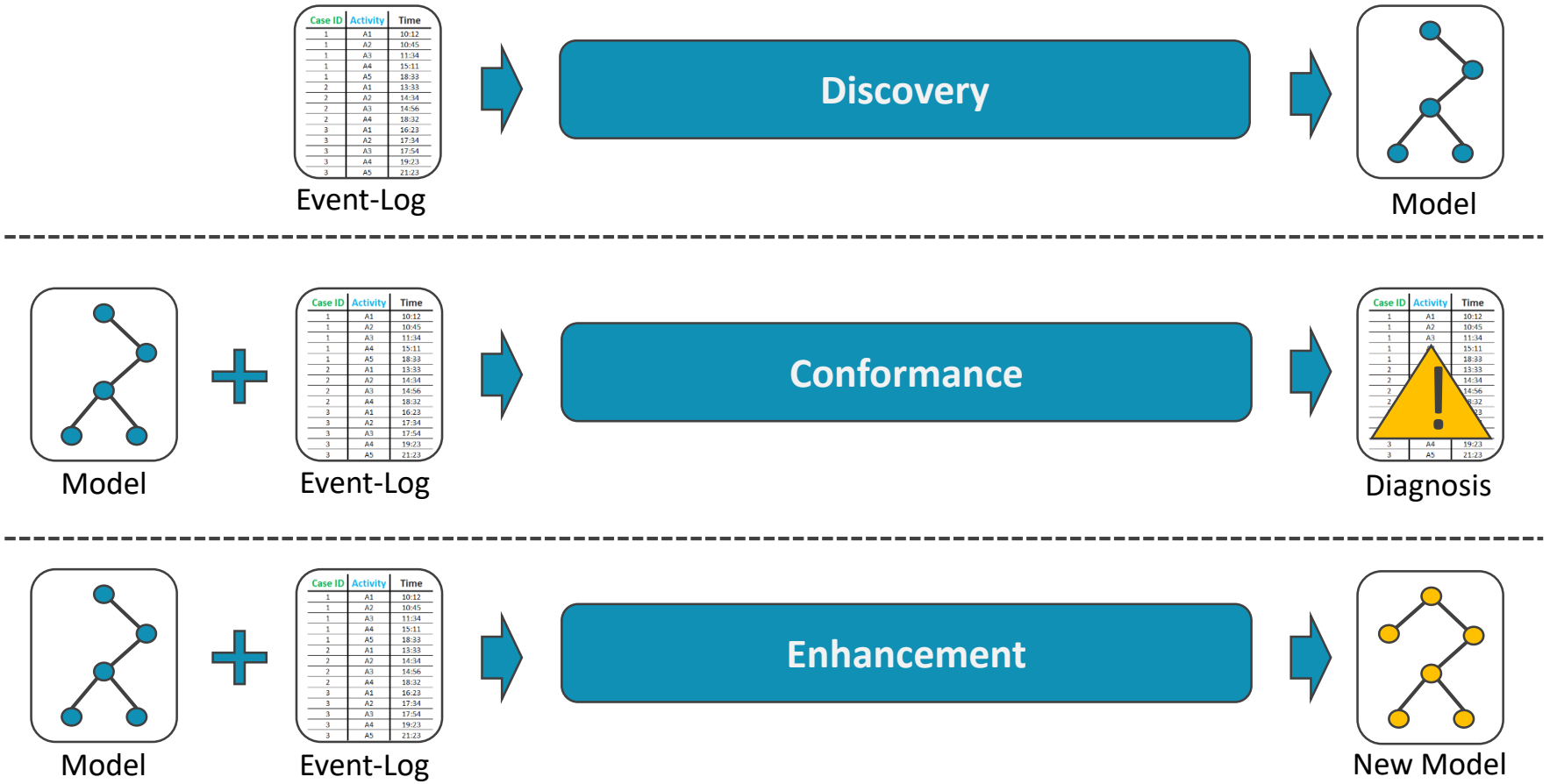
Event log

CaseID	Net order value	Vendor	Company code
10001	5337.98	Unisono SE	100
10002	250.30	Piccolo Ltd.	600
10003	12.17	Poly AG	100

Case table

PROCESS MINING USE CASES

celonis
Academic Alliance



Reference: Accorsi, et al. 2012, p. 355


11.8k
37.8k
161 days
8.7 days
5.0 days
237
of 11.8k
LIVE DEMO

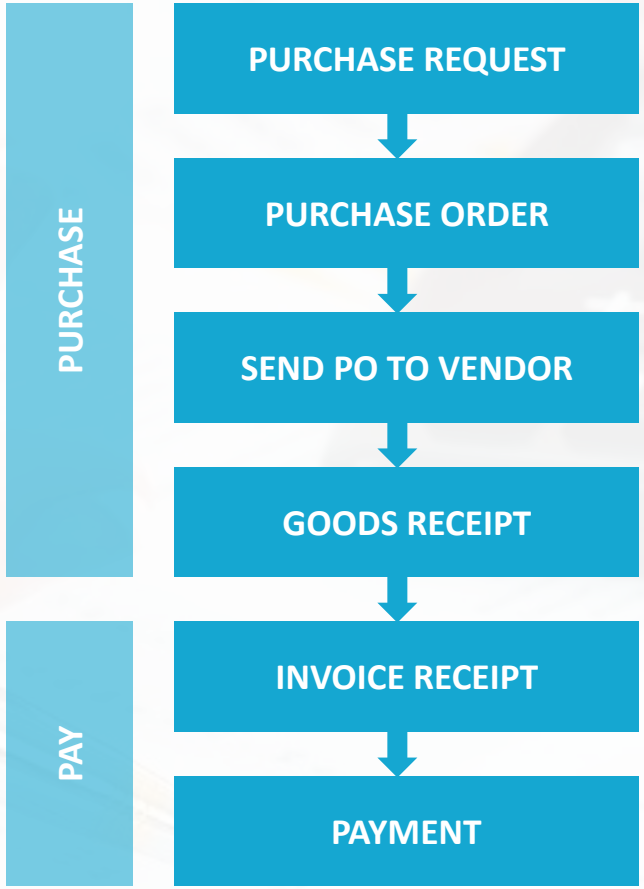
CELONIS USER GROUPS

celonis Academic Alliance

		Skills	Know how	Typical tasks
Viewer 	**Departments**	Business ★★★★★ Analytics ★★☆☆☆ Coding ☆☆☆☆☆	✓ Process knowledge ✓ No technical knowledge required	✓ Performance analysis ✓ Single case analysis ✓ Process improvement, e.g. customer relationship management
Analyst/Key User 	**Departments or Center of Excellence**	Business ★★★★☆ Analytics ★★★★★ Coding ★☆☆☆☆	✓ Understand the requirements of the departments/viewers ✓ Analytical skills (e.g., reporting in Excel)	✓ Create new analyses ✓ Definition of KPIs ✓ Implementing the requirements of the departments/viewers ✓ Data validation
Data Scientist 	**IT**	Business ★☆☆☆☆ Analytics ★★★☆☆ Coding ★★★☆☆	✓ Knowledge about the data models ✓ SQL skills	✓ Connecting new processes ✓ Add further data sources

Purchase-to-Pay (P2P)

- Core business process
- High number of transactions
- Complexity:
  Requests, approvals, timelines
- Various departments involved:
  Procurement, Accounting, Warehousing,…



SAP PURCHASE-TO-PAY: MASTER DATA TABLES

celonis Academic Alliance

Purchase Requisition (PR) Items

Specification by **various business departments** of **goods or resources** to be purchased.

Purchase Order (PO)

Instruction from purchasing organization to **vendor** to **provide goods or services**

PO Item | PO Item | PO Item

Goods Receipt

Certification of the **received quantity of goods** or of the **acceptance of services**.

Invoice Receipt

Analogous to goods receipt, refers to **invoice created by the vendor**.

EBAN
Purchase Requisition Items

- What (material, quantity, …) has been requested?
- Contains one row for each purchase requisition item.

EKKO
Purchasing Document Header

- Which purchase orders have been created?
- Contains one row for each purchase order.

EKPO
Purchasing Document Item

- Which purchase order items have been created?
- Contains one row for each purchase order item.

LFA 1
Vendor master (general)

- Which suppliers are being used?
- Contains one row for each vendor.

SAP PURCHASE-TO-PAY: TABLE OVERVIEW

celonis Academic Alliance

EBAN
Purchase Requisition Items

- What (material, quantity, …) has been requested?
- Contains one row for each purchase requisition item.

Primary key
- Client (MANDT)
- PR Number (BANFN)
- PR Item Number (BNFPO)

Important fields
- PR Type (BSART)
- PR Category (BSTYP)
- Deletion Indicator (LOEKZ)
- Purch. Group (EKGRP)
- Material Number (MATNR)
- PR Quantity (MENGE)
- Price in PR (PREIS)

Timestamps
- Requisition Date (BADAT)

EKPO
Purchasing Document Item

- Which purchase order items have been created?
- Contains one row for each purchase order item.

Primary key
- Client (MANDT)
- PO Number (EBELN)
- PO Item Number (EBELP)

Important fields
- Company Code (BUKRS)
- Plant (WERKS)
- Deletion Indicator (LOEKZ)
- Material Number (MATNR)
- Quantity (MENGE)
- Net Price (NETPR)
- Net Order Value (NETWR)
- PR Number (BANFN)
- PR Item Number (BNFPO)

EKKO
Purchasing Document Header

- Which purchase orders have been created?
- Contains one row for each purchase order.

Primary key
- Client (MANDT)
- PO Number (EBELN)

Important fields
- Company Code (BUKRS)
- Purchasing Org. (EKORG)
- Purchasing Group (EKGRP)
- PO Category (BSTYP)
- PO Type (BSART)
- Deletion Indicator (LOEKZ)
- Vendor Number (LIFNR)
- Currency (WAERS)

Timestamps
- Creation Date (AEDAT)

LFA 1
Vendor master (general)

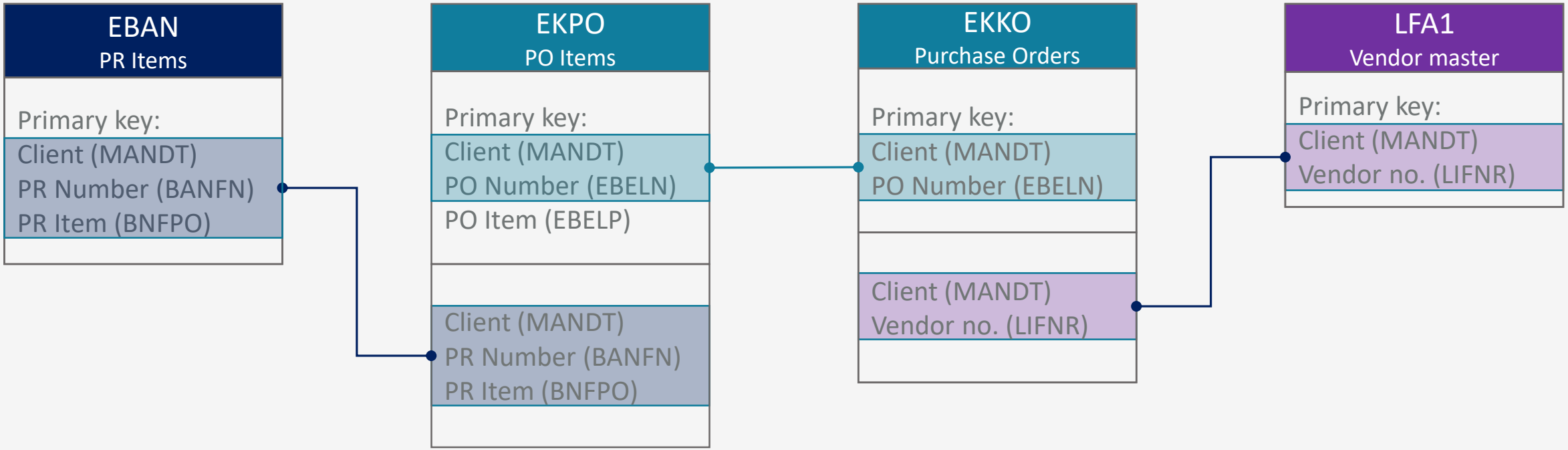
- Which suppliers are being used?
- Contains one row for each vendor.

Primary key
- Client (MANDT)
- Vendor Number (LIFNR)

Important fields
- Country Key (LAND1)
- City (ORT01)
- Name (NAME1)

SAP PURCHASE-TO-PAY: TABLE KEYS

celonis Academic Alliance



WORK WITH AN ANALYSIS

celonis
Academic Alliance

After learning the basic functions in Celonis, you continue with a more in-depth analysis of the process.
For this task, go to the **"Analysis"** and the **"Details"** sheet.

YOUR TASKS

7. Look at purchase order items without purchase requisitions. Who is the dominant vendor for these positions in terms of net value?
    a. IDES Consumer Products
    b. C.E.B. Barcelona
    c. Tiefland Glass AG

8. Have a look at Unisono AG (top 1 vendor in terms of number of PO items).
   Observing the number of PO items and the net value over time, what attracts your attention?
    a. There is an unusual peak in the net value in September 2009
    b. The number of PO items is strongly decreasing over time with December 2009 being the month with the lowest net order value
    c. There is a high accumulation of purchases towards the end of the year with a peak in net order value in November 2009

9. In the "Details" sheet, have a look at purchasing document 0000097360 with item 30020.
   What is the material group of the goods being ordered?
    a. Monitors
    b. SMI Demo Scenarios
    c. Bulbs

CONFORMANCE CHECKING

celonis
Academic Alliance

In the next step, you will compare the actual process data with the target process modeled in BPMN.
For this task, go to the **"Conformance"** sheet.

YOUR TASKS

16. Up to now, we have analyzed the process exploratively by looking at the "as is" process and filtering on interesting phenomena. Checking for conformance is a whole new use case. What are its main additional benefits?
    a. The process model can be designed in Celonis based on the "as is" process
    b. Deviations to the process model are detected automatically
    c. Root causes of violations are detected automatically across the whole data model

17. Have a look at the vendor SCT Inc. Which percentage of cases is compliant and what is the dominant violation for this vendor?
    a. 59% and price changes
    b. 57% and price changes
    c. 19% and invoice scan as a first process step

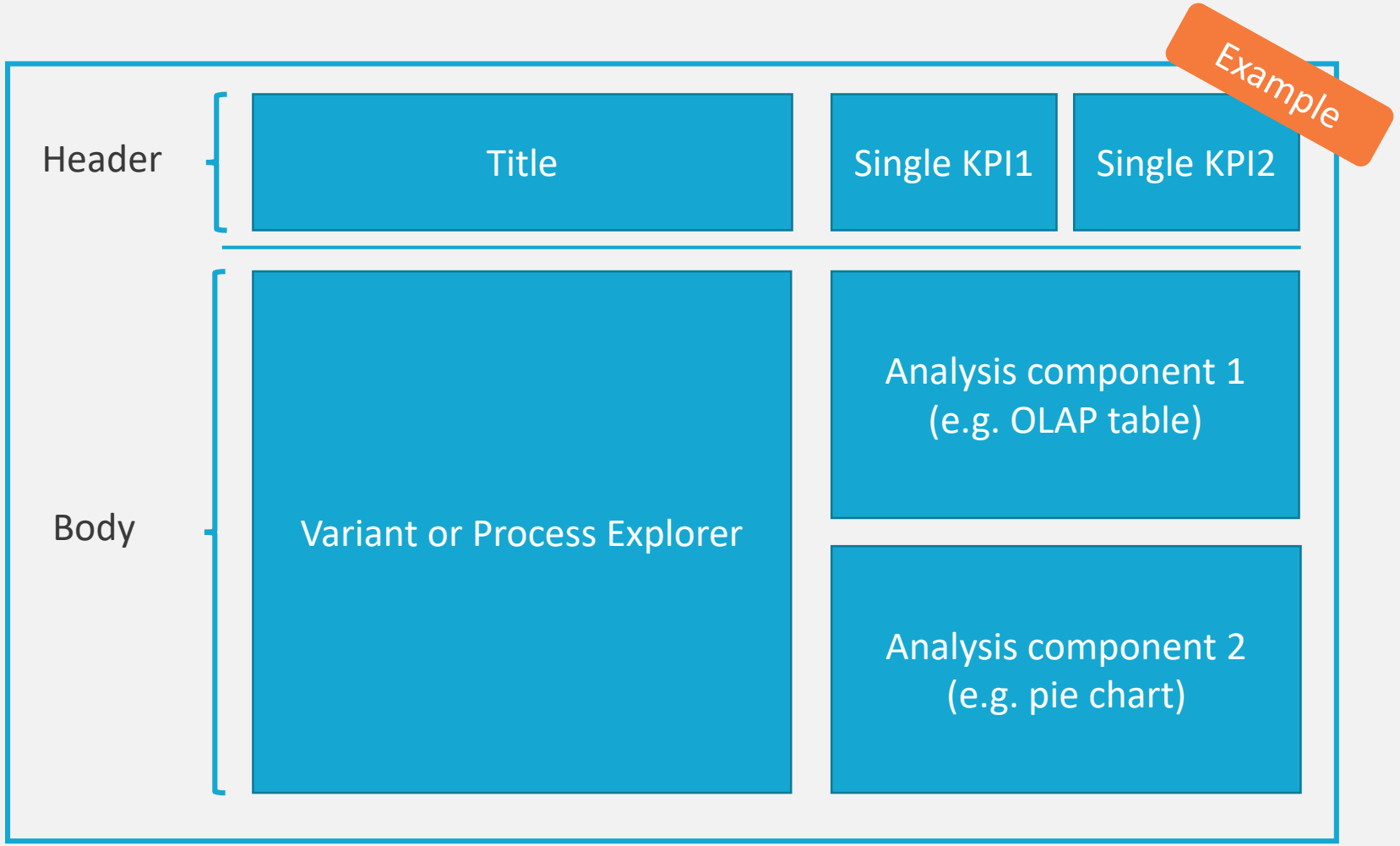
18. Consider the violations where process starts with the scan of the invoice. Which material groups are mainly related to those items?
    a. Bulbs, Monitors
    b. Metal processing, Monitors
    c. Metal processing, Monitors, Preserves

celonis
Academic Alliance

Take a break!

HOW TO STRUCTURE YOUR ANALYSIS

celonis
Academic Alliance



Structure your analysis

- ✓ As an analyst, it is important to create well structured analyses that can be easily interpreted by the viewers
- ✓ A good analysis starts with a useful title and short explanation of the analysis' purpose
- ✓ In the headline, you can add further single KPIs and numbers describing the data set (e.g. the number of cases or the total net value)
- ✓ The body is the section beyond the headline, which can be seperated by a horizontal line
- ✓ The body includes various analysis components that help the viewer to understand the process and to drill down the data
- ✓ Usually, one analysis refer to a specific use case, e.g. process overview, analysis of rework activities or automation

ADD A HEADLINE

Please ensure that you work in a new analysis in your course's workspace. As data model, select the P2P demo data.
Add a **new sheet** to your analysis to answer the following tasks.

YOUR TASKS

19. Add a new sheet and rename it to "My first analysis". Please structure your analysis as shown on the previous slide. Afterwards, please conduct the following steps in your new analysis:
    - Add a horizontal line and place it in the upper part of the sheet (e.g., row five of the gridlines)
    - Extend the length of the horizontal line, such that it goes from the left to the right end of the analysis sheet
    - Next, add a text component and add "My first analysis" as headline to the sheet, such that the headline is placed in the upper section of the sheet formed by the horizontal line added before
    - Adjust the size of the headline text to "xxx-large 21px", change the formatting to bold and set blue as text color
20. Add two "Single KPIs" to your headline with the following settings (Go to "General options" after adding the component to adjust the configuration, click on the formula editor to add the KPI):
    - KPI 1: Title: # PO items, Type: Number, KPI: Case count (Hint: COUNT_TABLE("EKPO") from Standard Process KPI), Formatting: Rounded number
    - KPI 2: Title: Total net value, Type: Number, KPI: Sum of net order value (Hint: SUM("EKPO"."NETWR") from the Purchasing Document Item table), Formatting: Rounded number, Units: € (enter a blank space before the Euro sign)
    - In the settings of each KPI, switch to "Diagram area" and reduce the size of the component title to "small 13px", deactivate borders, and adjust the size of the KPIs, such that they are shown in the headline section of the analysis (next to the title)

ADD AND CONFIGURE THE VARIANT EXPLORER

Please ensure that you work in a new analysis in your course's workspace. As data model, select the P2P demo data.
Use the sheet **"My first analysis"** from the previous task and answer the following questions.

YOUR TASKS

21. Within your sheet "My first analysis", please conduct the following steps:
    - Add a Variant Explorer
    - Adjust the size of the Variant Explorer such that it covers the left half of your sheet. Place the component below the headline from the previous task
    - Add "Variant Explorer" as title, set the size of the title to "large 15px" and set the text color to grey
    - Highlight the following activities in orange color
      (Hint: Go to "Activity color" in the dropdown menu of the component options):
      - ✓ Create Purchase Order Item
      - ✓ Receive Goods

ADD AND CONFIGURE CHARTS AND TABLES (I/II)

Please ensure that you work in a new analysis in your course's workspace. As data model, select the P2P demo data.
Use the sheet **"My first analysis"** from the previous task and answer the following questions.

YOUR TASKS

22. Add a table (component name is "OLAP Table") to the upper right area of the "My first analysis sheet" with the following features:
    - Add a new dimension and select the vendor name (Hint: Clear name = "Vendor Text"; Technical name = "LFA1"."NAME1")
    - Add the following KPIs:
        - Case Count
        - Sum of the net order value in Euro
          (Hint: Add "Custom KPI" and type in "SUM("EKPO"."NETWR")" from the Purchasing Document Item table)
    - Add "Net order value" as name of the KPI (instead of "New Expression"), change the formatting of the net order value KPI to "Rounded number" and enter "€" in the "Units" field
    - Give your table a proper name (e.g. "Purchase Orders by Vendor"), set the size of the title to "large 15px" and set the text color to grey. Finally, add a descending sorting to the Net Order Value column (highest value comes first)
    - Switch from the Edit to the Viewer mode and use selection views (Activity selection) to filter on all cases with "Deletions of the Purchase Order Item"
    - Which vendor appears first in terms of sum of net value?
      a. C.E.B. Barcelona
      b. Umbrella Corporation
      c. Tiefland Glass AG

ADD AND CONFIGURE CHARTS AND TABLES (II/II)

Please ensure that you work in a new analysis in your course's workspace. As data model, select the P2P demo data.
Use the sheet **"My first analysis"** from the previous task and answer the following questions.

YOUR TASKS

23. Below the table, add a pie chart showing the number of purchase order items per company code text:
    - Add the company code text as dimension (Hint: Clear name = "Company Code Text"; Technical name = "EKPO"."BUKRS_TEXT" in the Purchasing Document Item table)
    - Select "Case Count" as KPI
    - Give your table a proper name (e.g. "Purchase Orders per Company Code"), set the size of the title to "large 15px" and change the text color to grey
    - Set the number of "Elements shown" in the general component options to 6 (instead of 4 as default)
    - Switch from the Edit to the Viewer mode to select all cases without purchase requisition.
    - Which company code has the highest number of purchase order items?

        a. Sdad NOVA Formacion
        b. IDES Retail GmbH
        c. IDES AG

celonis
Academic Alliance

Celonis PI

Process Mining becomes smart

PI FEATURES

Celonis PI (Proactive Insights Engine) combines Process Mining with machine learning and A.I. to achieve highly intelligent and fully automated insights.

PI Conformance

Compares actual operations to designed processes (conformance checking) and automatically identifies the highest priority issues and their root causes, so you can take immediate action.

PI Machine Learning

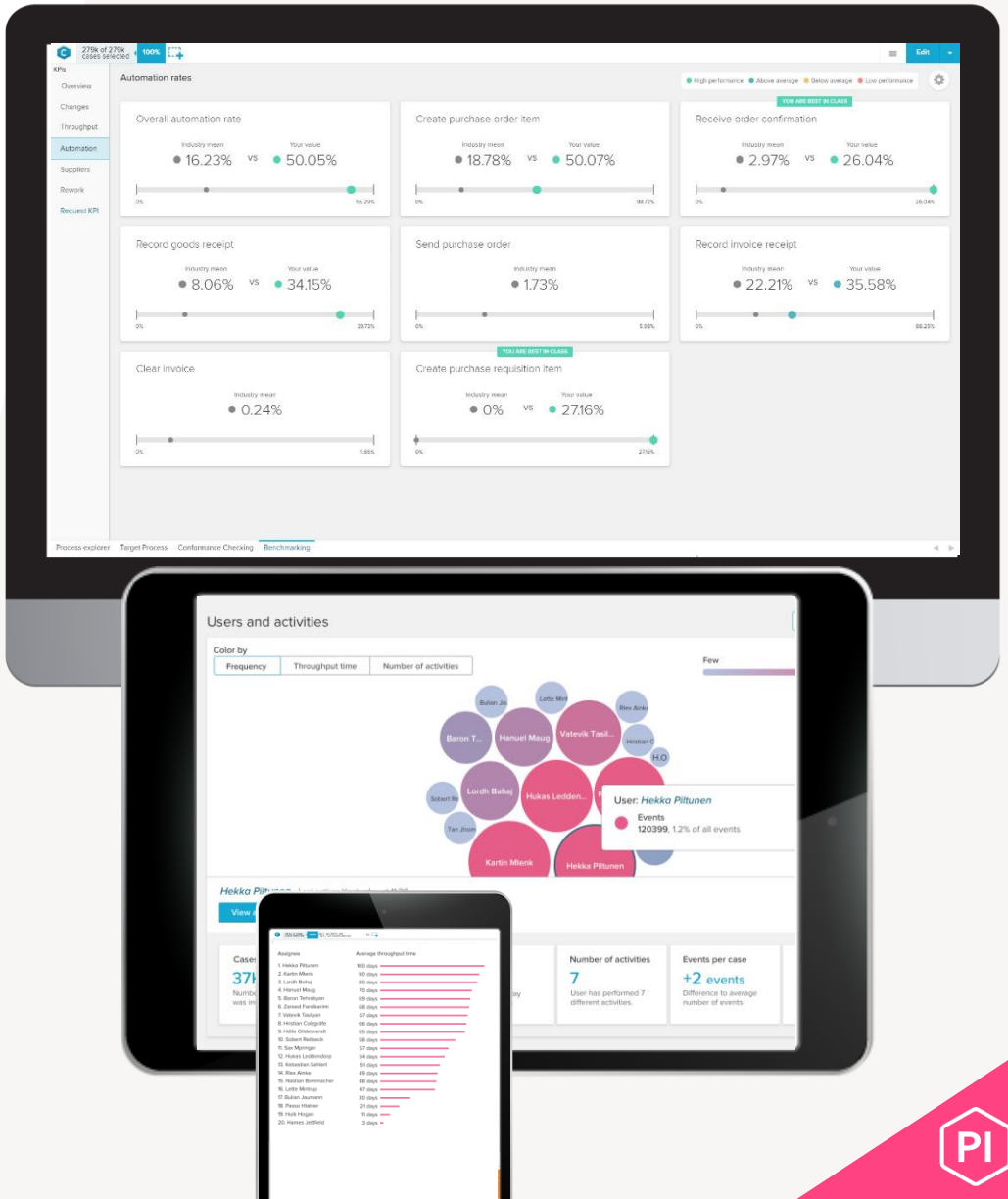
PI Machine Learning integrates the most sophisticated machine learning and statistical algorithms natively into all Celonis analyses. The possibility to integrate any R-Library or statement into Celonis will allow every user to apply advanced prediction techniques.

PI Social

Use PI to gain a deep understading of the human aspect or your processes. Identify which teams have the best outcomes, which interactions result in lost time or bottlenecks, or discover where inneficiencies in organization structure call for improvement.

PI Companion

Identifies potential issues before they even happen and allows users to make the right decisions during process execution rather than after a problem arises.



celonis
Academic Alliance

Proof of Value

PROCESSES ARE EVERYWHERE

IT Service Mgmt

Procurement

Human Resources

Production

Sales

Accounting

Logistics

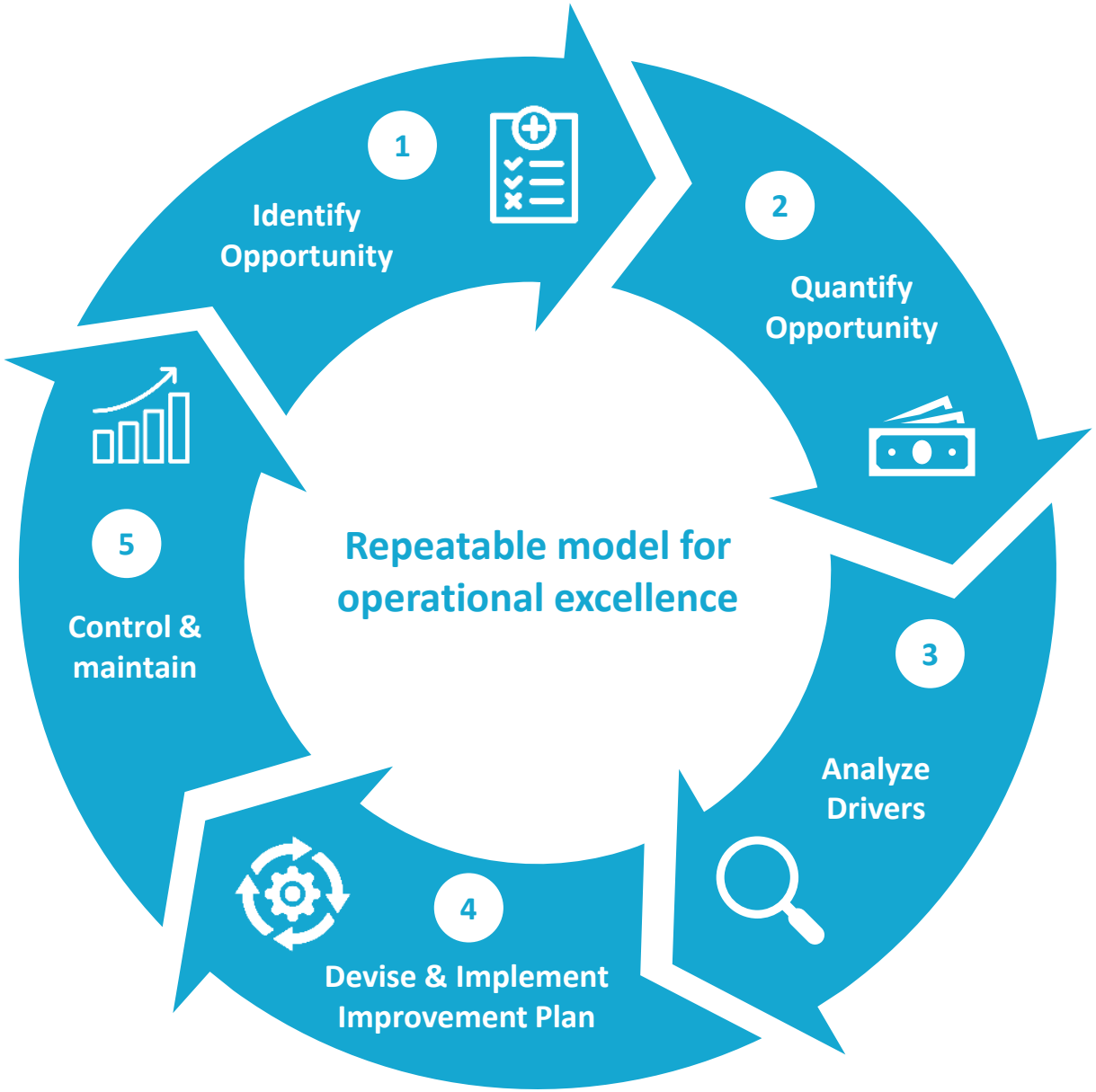
Audit

Webanalytics

...and many more

CELONIS - PATH TO VALUE

celonis
Academic Alliance



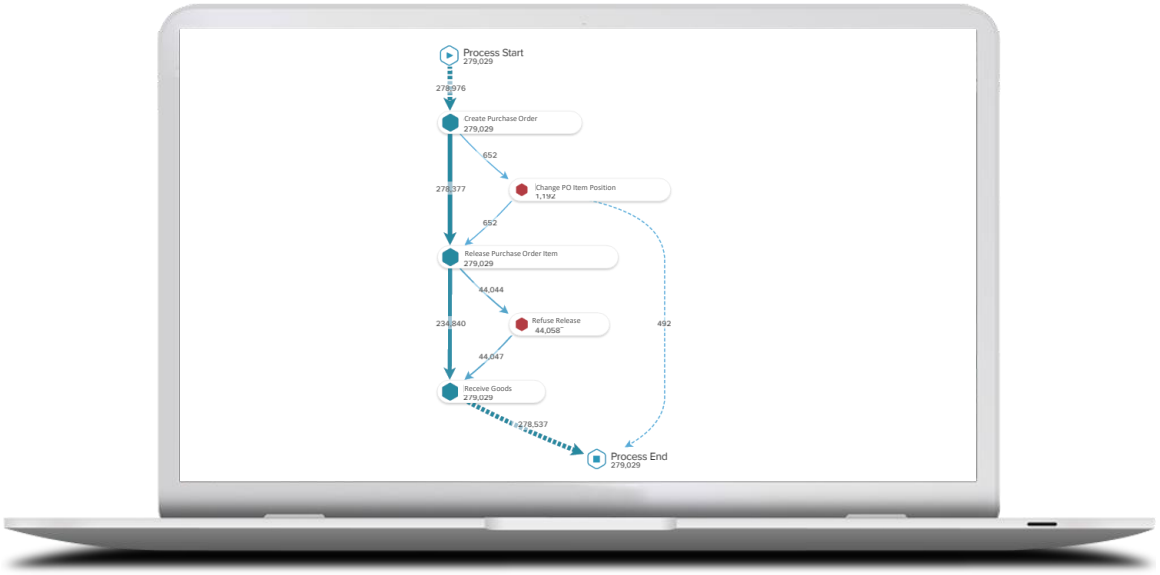
1 Value Assessment
Get a clear picture of the value that Process Mining can deliver to your oganization

2 Organizational Fit
Define a clear and effective user adoption strategy including roles and responsibilities

3 Return on Investment
Deliver a business case, timeline and return on investment including all associated costs

ANALYSIS

How often do rework activities occur during the purchasing process?



Please note: all screenshots used are merely exemplary and have not been taken from real customer data. Hence, they do not correspond with the calculations made in this business case.

MEASURES & POTENTIALS

Rework activities slowed down the process and led to significant manual effort. With Celonis, often occurring **rework activities could be identified** and **reduced by up to 50%.**

OVERALL POTENTIAL

EFFORT OF REWORK ACTIVITIES:

Activity	#	Time	Sum
Change Price	152,092	15 min	2,280,000 min
Block Purchase Order	52,148	25 min	1,303,700 min
Delete Purchase Order	25,920	25min	648,000 min
Refuse Purchase Order	26,064	30min	781,920 min

SAVINGS:

5,013,620 Min * 50% = 47,780 h/Year

= 22.2 FTE =1,555,644€/Year

*1 FTE = 5 Days/Week * 8h * (52-5) Weeks/Year = 1880 Hours/Year = 70.000€*

1.6 m € SAVINGS

BUSINESS IMPACT OF PROCESS MINING

celonis
Academic Alliance

Efficiency

- Perfect Order
- Automation

Speed and Agility

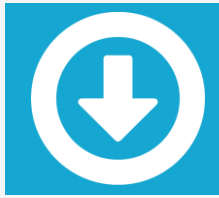
- On-Time Delivery
- Throughput time

Quality and Fulfillment

- Rework
- Rejections

Compliance

- Should-be vs. As-Is
- Process monitoring



Reduce Process Cost

Increase Revenue

Reduce Working Capital

Improved Riskmanagement

CELONIS CUSTOMERS TRANSFORMING

celonis
Academic Alliance

ORDER-TO-CASH	SIEMENS	Transformed order-to-cash and eliminated 10M manual activities, saving $15M+ annually
CUSTOMER JOURNEY	innogy	Transformed customer onboarding for 3M customers, "Go-Live Ratio" up 20%, time to delivery down 5 days
IT DELIVERY	Schlumberger	Transformed the IT delivery process introduction of a new ERP affecting more than 20,000 users
PROCURE-TO-PAY	vodafone	Transformed P2P, Perfect PO from 73% to 87%, touchless invoices up 63%, errors down 92%
SUPPLY CHAIN	ABB	Transformed the supply chain, On time delivery up 27%, anticipates to save >$100m

celonis
Academic Alliance

A look into the future

THE FUTURE

of the business world

By 2020, Celonis‘ Process Mining technology for Big Data Analytics will be deeply embeded in every large company as a business critical application in the race for the fastest, most efficient and most transparent processes.

BECOME A CERTIFIED PROCESS MINING EXPERT

celonis
Academic Alliance

Boost your skills and your career

How does it work?

- Complete the e-learning on Process Mining including videos, readings and challenges
- Get a valuable and professional certificate for your CV
- Use your Celonis software license

How long does it take?

- About 30 hours in total or six weeks á five hours
- Start whenever and whereever you like!

How much does it cost?

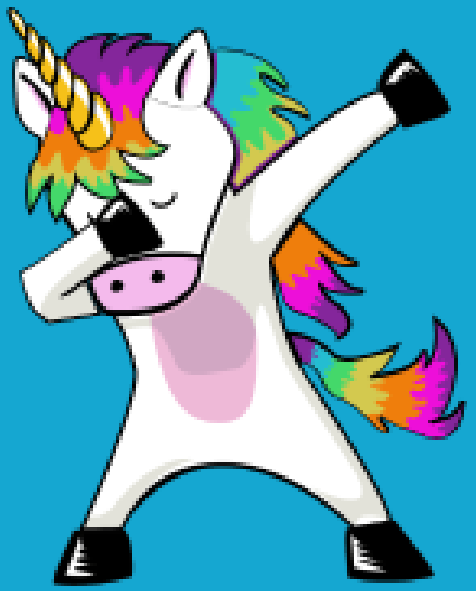
Nothing. Exclusively for the first students signing up.

REGISTER NOW!

https://www.celonis-academic.com/

celonis
Academic Alliance

Do you have any questions?



YOUR PERSONAL CONTACT

celonis
Academic Alliance

JANINA NAKLADAL

ACADEMIC ALLIANCE MANAGER

+ 49 151 466 070 79

j.nakladal@celonis.com

CELONIS SE
THERESIENSTRAßE 6
80333 MUNICH